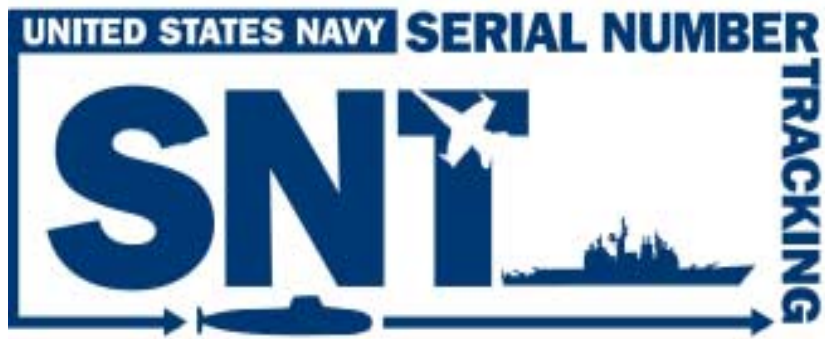
NAVAL AVIATION SYSTEMS

PRESENTATION TO:

Joint Technology Exchange Group (JTEG)

21 March 2001

NAVAIR
Implementation Plan



JTEG
21 MARCH 2001

Darrell Ahne
AIR-6.3.4
AHNEDP2@NAVAIR.NAVY.MIL

NAVAIR SNT Definition

Serial Number Tracking, enabled by automatic identification technology (AIT), provides closed loop, cradle to grave status information on maintenance critical, serialized parts.

AIT Implementation

Components

Media Selection

Location

Data Requirements

Installation

Documentation

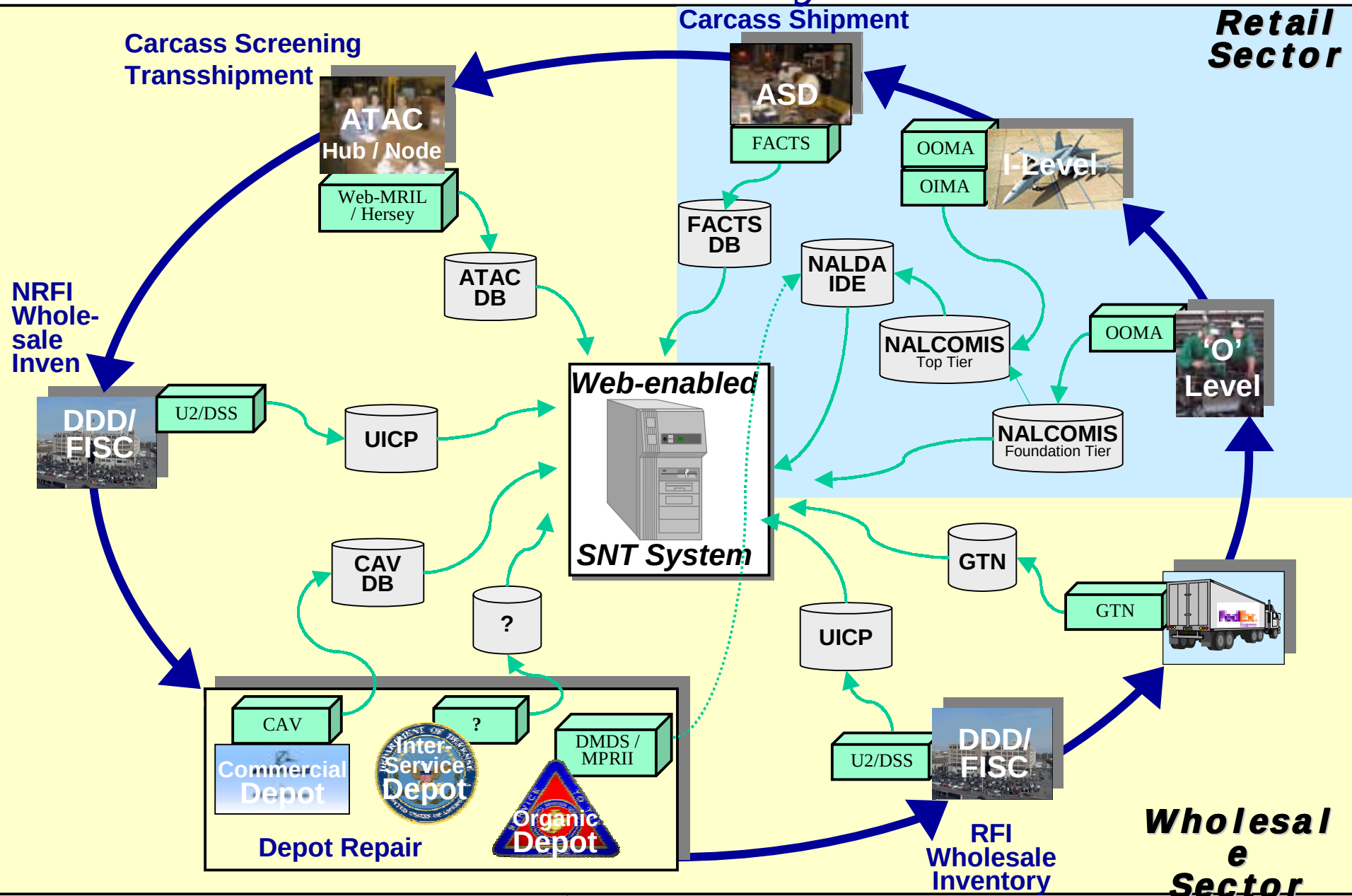
Information System

Interface to Virtual Shared Data Warehouse

Web enabled: www.snt.navsup.navy.mil

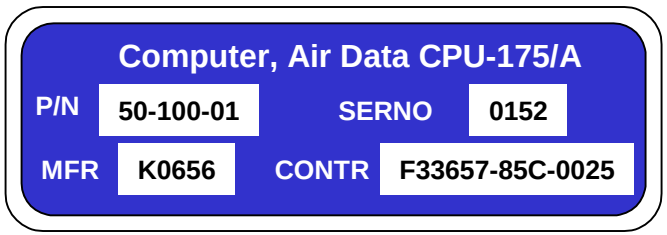
Ad-hoc query report generation capabilities

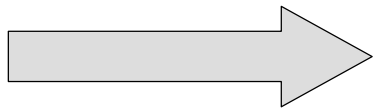
Information Systems

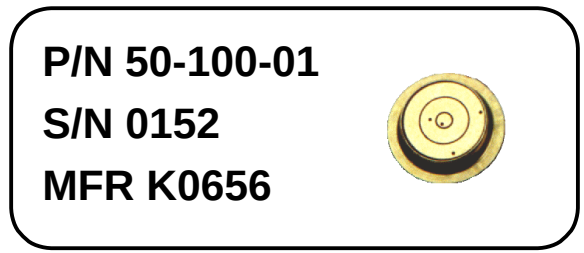


= Information Flow = Asset Flow

SNT ROADMAP







Today
Parts marked
with
man readable
placards

1/01 10/01 10/02 10/03 10/04 10/05

Phase 1

CVBG

Phase 2

Shore-based

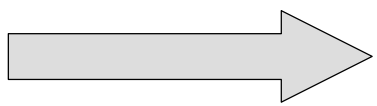
NALCOMIS
O-OMA
CMIS

Phase 3

Remainder

1.2 M
parts
marked
with
AIT

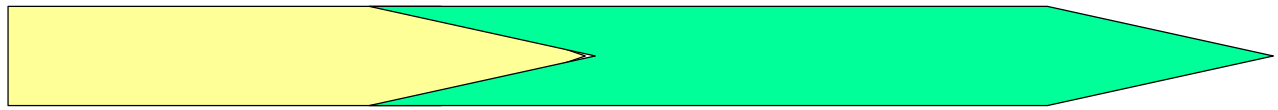
Inaccurate, unused untimely data



Proactive use of real time, accurate data

Implementation Process

Program



Non Recurring Engineering

Identify components to be tracked

Select AIT media

Determine information required on the media

Document with ECP

Formulate installation and support plans

Implementation

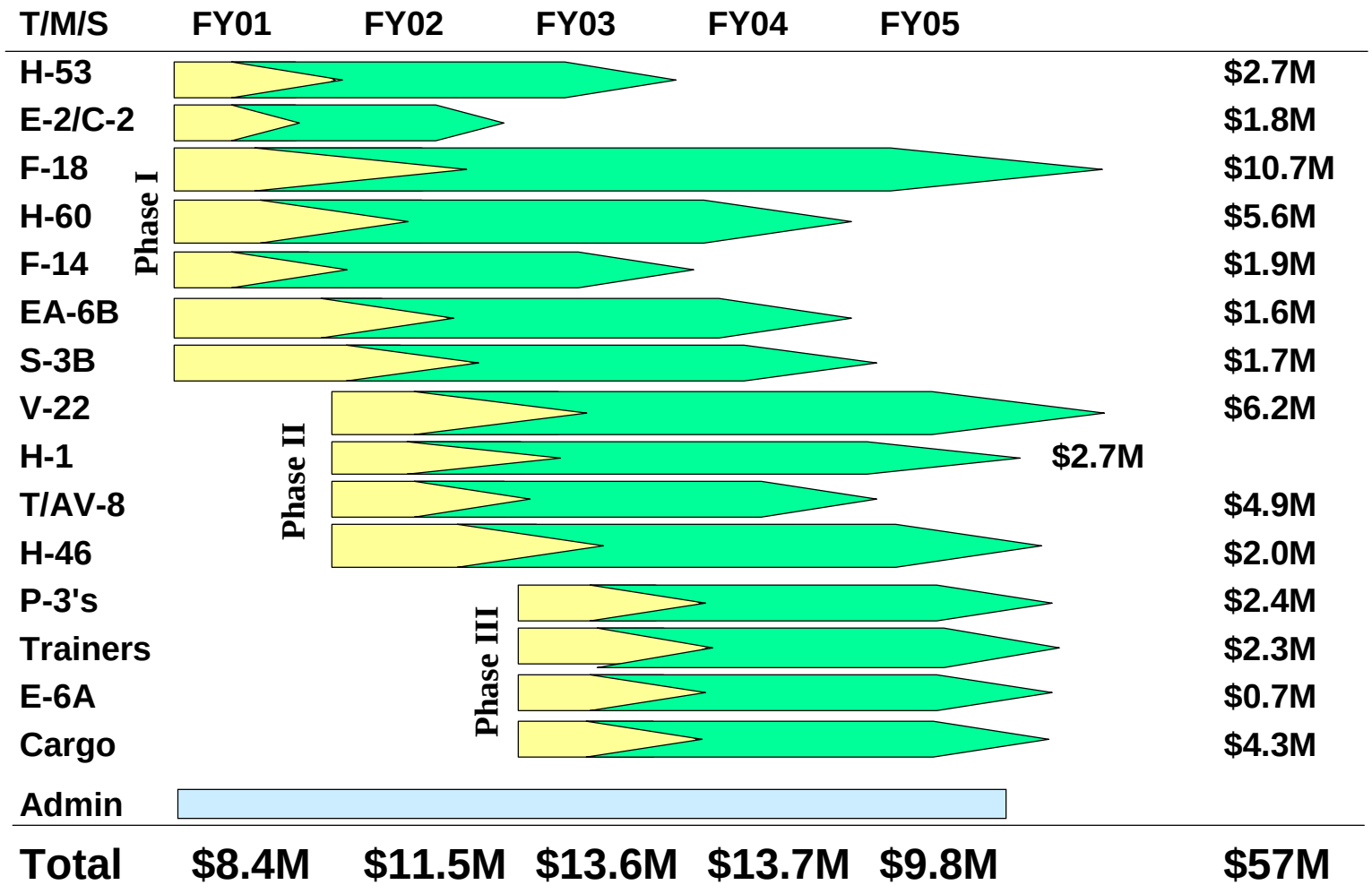
Purchase hardware/kits

Authorize install - Technical directive

Authorize flight - flight clearance

Labor to install

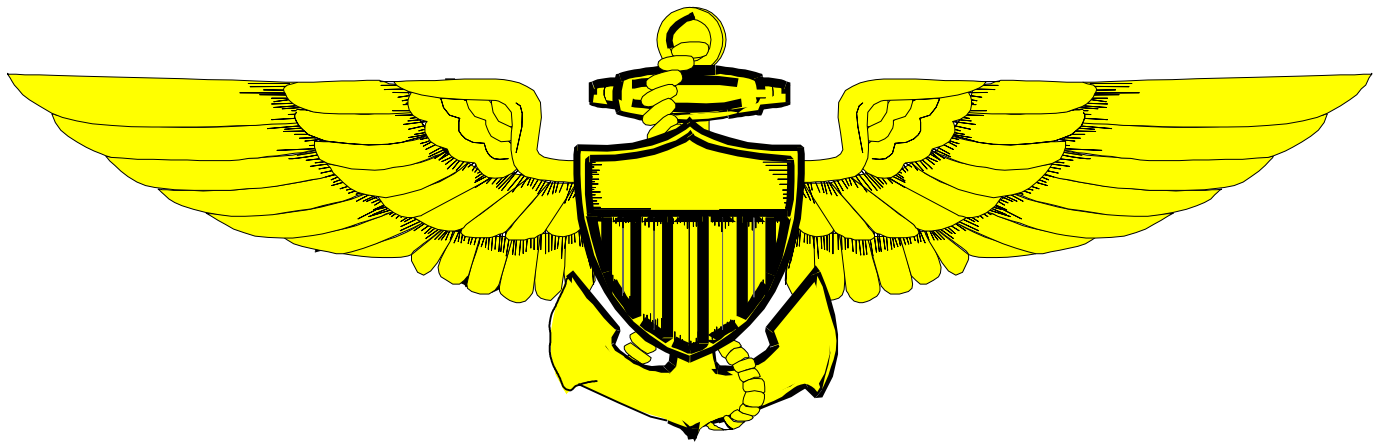
Implementation Plan



Non recur Eng.

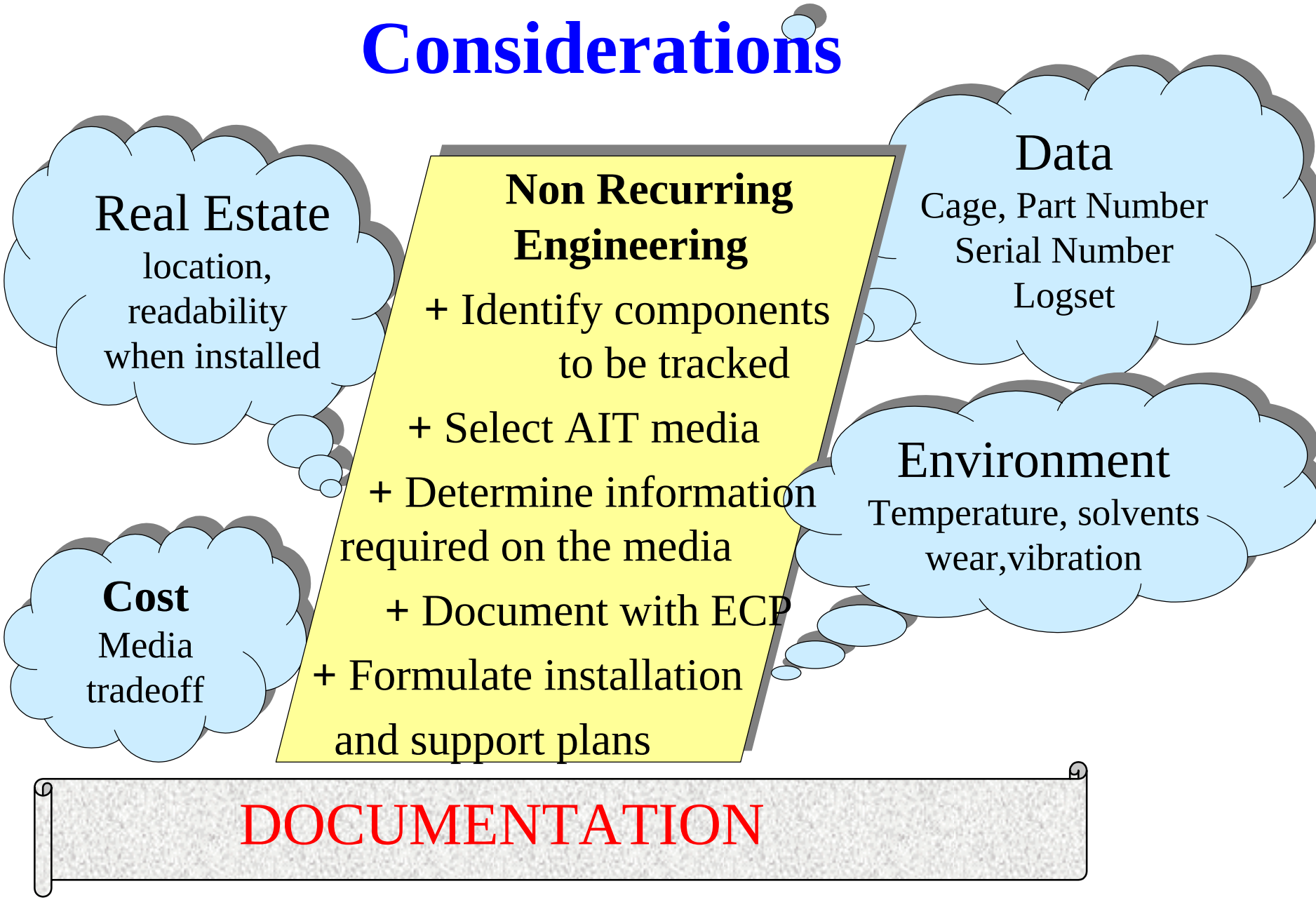
Retrofit

** Not included:UAV's, missiles, engines or common support equipment **



Engine Specific

Non Recurring Engineering Considerations



Information System Concept

***Plan**: Collect data through interfaces with various supply and maintenance systems and provide access via a Virtual Shared Data Warehouse*

Three components:

⇨Data Collection

- ✓ Enabled by AIT: Data accuracy improvement, time savings
- ✓ AIT Interface required
- ✓ Dual AIT capable: Contact Memory Buttons and Bar Codes

⇨Data Storage

- ✓ Various maintenance/supply database changes required

⇨Data Retrieval

- ✓ Single Portal: Virtual Shared Data Warehouse (VSDW)
- ✓ Web-enabled: www.snt.navy.mil (Access controlled: PKI)
- ✓ Ad-hoc query/report generation capabilities

Serial Number Tracking (SNT) Implementation

AIT Media Installation Strategy		Installation Options
A. Forward Fit	**(1) New Delivery Aircraft** **(2) New Delivery Spares**	✓ **Class II ECP** ✓ **Install during production** ✓ **Revise parts marking standard (MIL-STD-130)** ✓ **Funded from existing APN accounts**
B. Retrofit	**(1) Installed (*Aircraft*)** **(2) Non-RFI Spares** **(a) Retail** **(b) Wholesale** **(3) RFI Spares** **(a) Retail** **(b) Wholesale** **(4) Installed (*Others*)** **(a) Trainers/Training Equip** **(b) Test Bench Installs (TBIs)** **(c) Maint Assist Modules (MAMs)**	✓ **Technical Directive (TD)** ✓ **Install based upon accessibility to item** **“O” Lvl - B (1)** **“I” Lvl - B (2)(a), B(3)(a), B(4)(b)(c)** **“D” Lvl - B(1), B(2)(b)** **NAVSUP - B(3)(b)** **NAMTRAGRU - B(4)(a)** ✓ **TD Preparation - PRL or Alternate Fund Sources** ✓ **TD Kit(s) - $?**

Information Systems Changes

Web Enabled SNT Front End

Funded IOC (Oct 00)

Activation of SNT System
- DSS
- Access via databases (Green)
- Basic queries to support AMSR issue 16

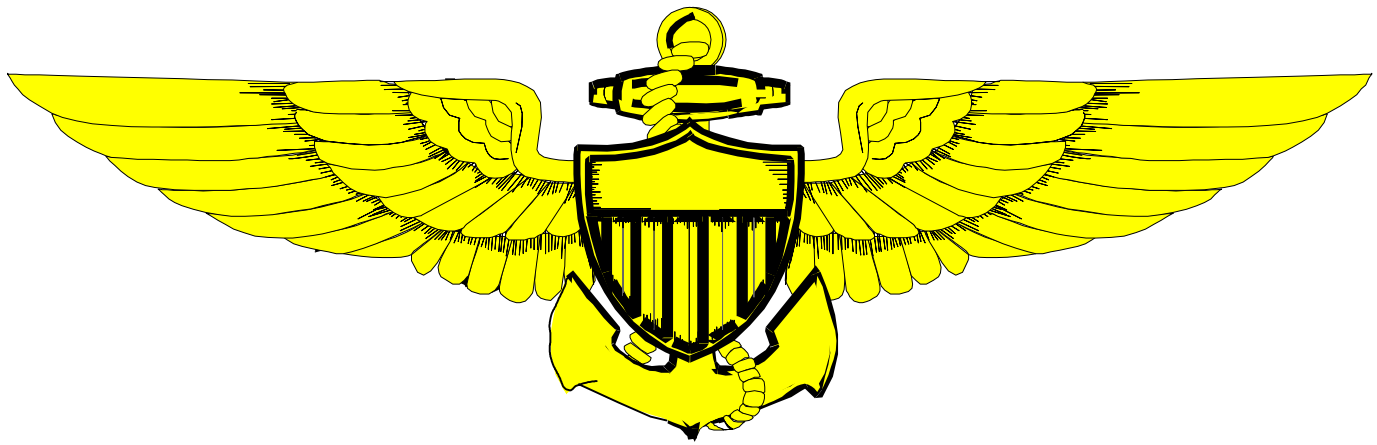
Retail Sector	AIT Interface	Database Changes	Database Access	System Development
NALCOMIS Aviation O/I	CMB/ Bar Code	N/A	Mar 00	N/A

Wholesale Sector	AIT Interface	Database Changes	Database Access	System Development
MRP II Organic Depot	CMB/ Bar Code	N/A	TBD Aug/Sep 00	N/A
FACTS Carcass Shipment	Bar Code (on Pkg)	N/A	Mar 00	Minor Changes
ATAC Retrograde Tracking	Bar Code (on Pkg)	N/A	Mar 00	SN Feed to Database
CAV Commercial Depot	CMB/ Bar Code	Add SN	Mar 00	Warranty Tracking
GTN Global Transportation	Bar Code (on Pkg)	N/A	TBD Jul/Aug 00	N/A
U2/UICP/DSS Wholesale Inventory	Bar Code	Add SN	Expect Strategy June 00	
? Interservice Depots	CMB/ Bar Code	Add SN	TBD	TBD

Legend

- = Capability exists or funded
- = Reqt known/ known delay
- = Unknown cost/ schedule

Interim Solution:
Force Inventory Assets in SNT Suspense File



Engine Specific

What is Happening Commercially

- **Airbus Industrie:**
  - **Must be ATA SPEC 2000 Compliant-LRU parts**
    - General Conditions of Purchase (GCP 2000 - Issue 4)
    - Airbus Industrie Directive (ABD100.2.9)
- **Boeing will have similar requirements**
- **United Airlines requesting implementation plan for machine readable, unique identification of all serialized engine parts**

Current Equipment

Matrix Examples

Machine Readable *Human Readable*

18 x 18 Square Data Matrix

P/N 1B2456 C
S/N DENCAK1234
HAAKA 1234

12 x 26 Rectangle Data Matrix

P/N 1B2456 C
S/N DENCAK1234
HAAKA 1234

(Encoded in the Data Matrix)

USN 77445DENCAK1234

(TEI **+** CAGE Code **+** Serial Number)

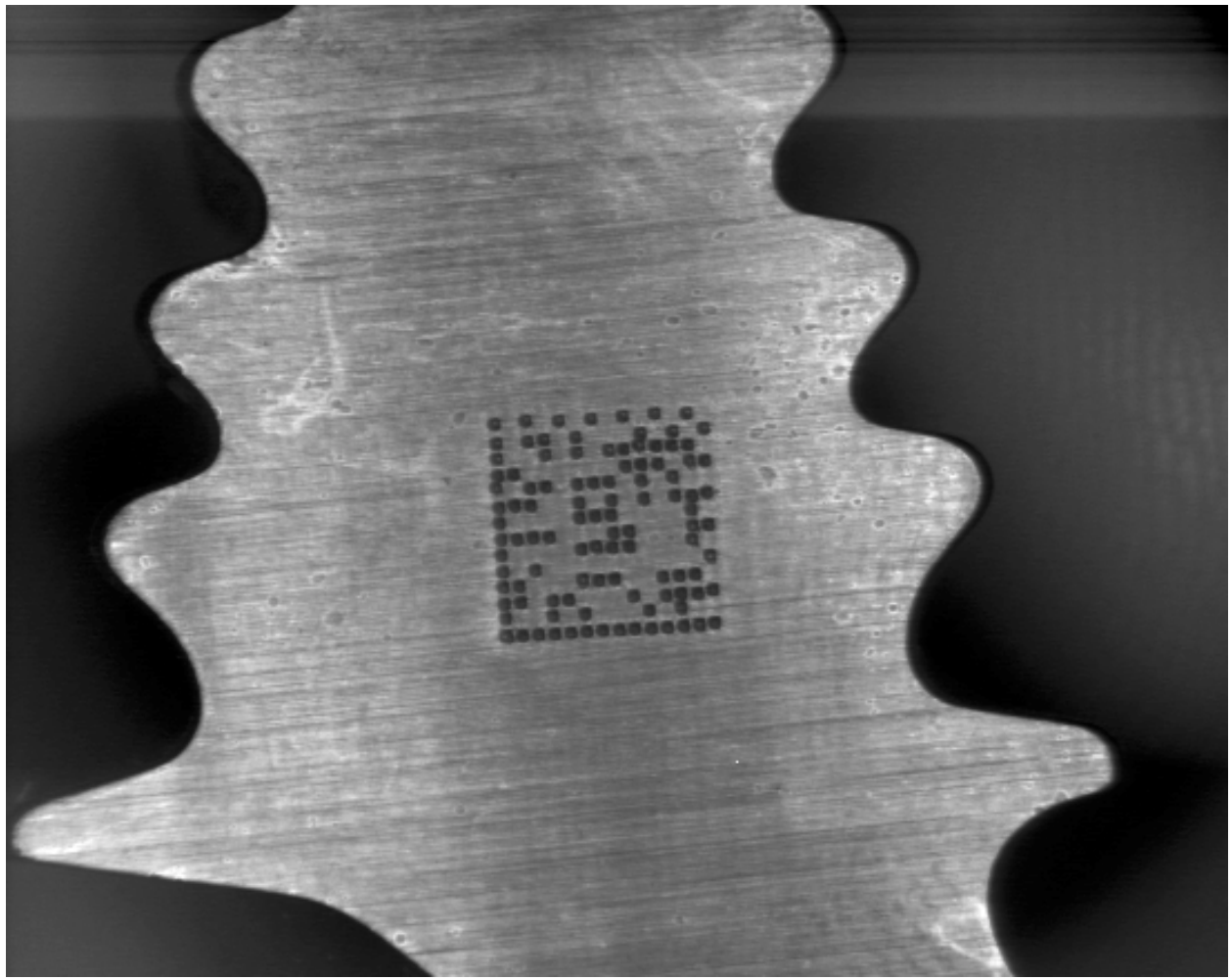
* TEI: 4 characters (USN followed by a space)
* CAGE Code: 5 characters
* Serial number: 10 characters

(Serial numbers need to be unique within CAGE Code)

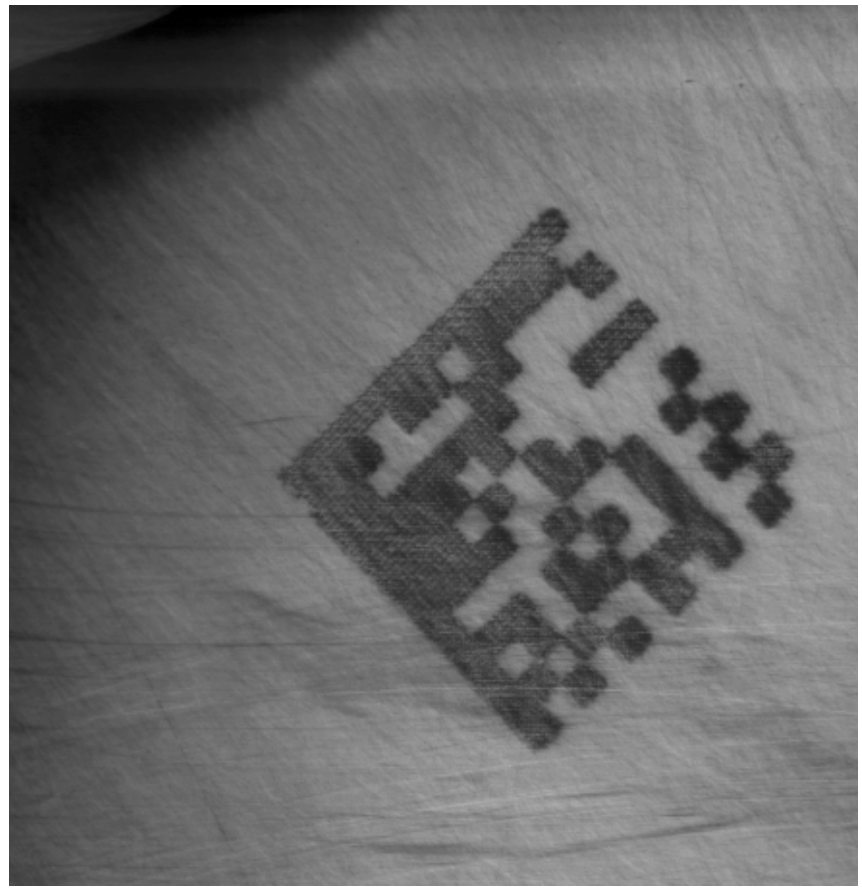
Square and Rectangular Data Matrix - Dot Peen

Rectangular Data Matrix on Vane - Dot Peen

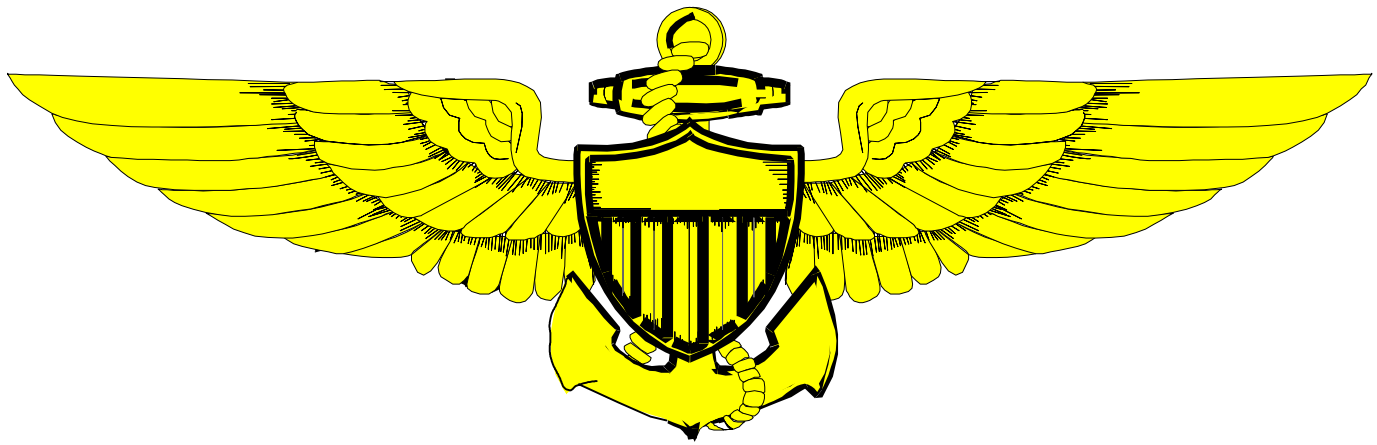
Square Data Matrix on Blade Root - Dot Peen



Electro-Chem Etch Examples



Fast, Accurate Part Identification
INCREASED RELIABILITY
Data Availability Wherever Needed
STRATEGIC VISION
Standardized Identification Method
Data Sharing Across Industry
Supplier, Eng. Mfg., O/R Shops, Airlines
Data Based Problem Resolution/Investigation



Background/Support

Contact Memory Button Partitioning

Maintenance History*

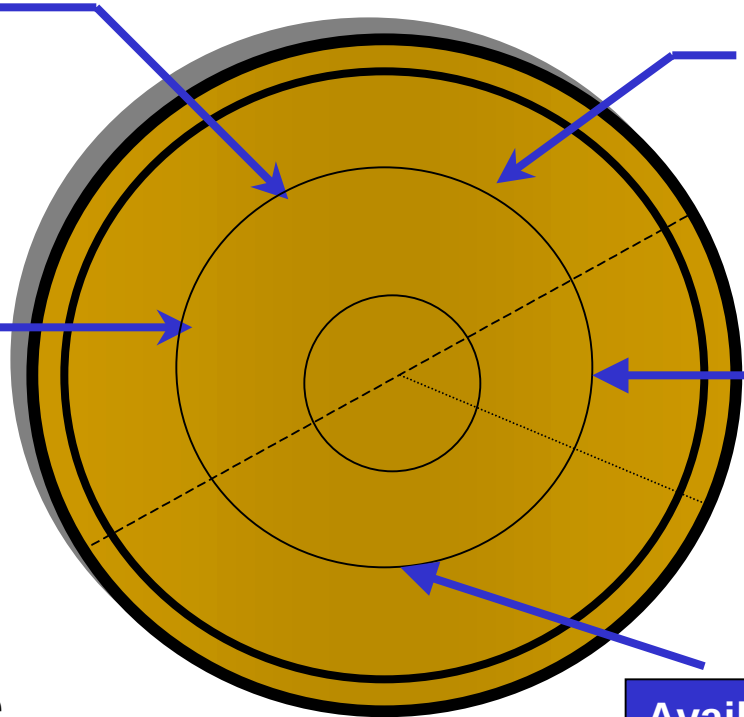
LOGSET

Warranty Data*

P/N 50-100-01
S/N 0152
MFR K0656

Nameplate Data

Computer, Air Data CPU-175/A
P/N 50-100-01 SERNO 0152
MFR K0656 CONTR F33657-85C-0025



Available for Vendor Use

Available for Future Navy Use

* TBD whether to use within aviation maintenance

"7" Mandatory Data Elements

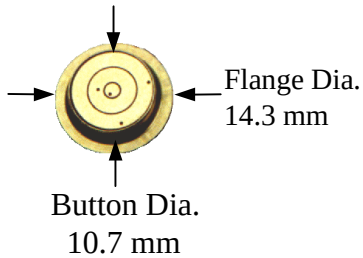
Data Element	Mandatory	Conditional	Comments
A. Nomenclature	X		Need a noun name for the manufacturer
B. Customer Part Number		X	
C. National Stock Number (NSN)		X	NSN rather than NIIN because NIIN can change
D. Supplier Part Number	X		Known from the beginning
E. Supplier Serial Number	X		Original Equipment Manufacturer (OEM) if appropriate
F. Lot Number	X		
G. Special Material Identification Code (SMIC)		X	
H. Date of Manufacture (DOM)	X		Birth Date
I. Commercial & Government Entity (CAGE) Code	X		Needed for the supplier
J. Data Universal Numbering System (DUNS) Number		X	Mostly used for medical
K. Demilitarization Code		X	
L. Joint Army Navy (JAN) Number			Not required for either mandatory or conditional category
M. Contract Number		X	
N. DD Form 250 Number		X	
O. Warranty Start Date		X	Consistent with Serial Number Tracking (SNT)
P. Warranty Stop Date		X	Consistent with Serial Number Tracking (SNT)
Q. Model Number	X		To establish uniqueness
R. HAZMAT Code		X	Where appropriate
S. Shelf Life		X	Where appropriate
T. DoD Identification Code (DODIC)		X	

AIT Equipment

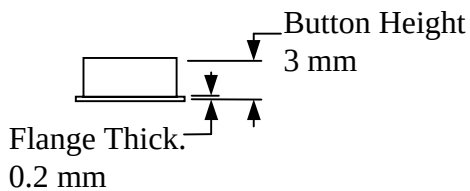
MiniButton™
(Note: Not Shown to Scale)

MacSema, Inc. Part #**BMEWK8**
Cage Code **03BF3**

Dimensions:
Flange Dia. = 14.3 mm
Flange Thick. = 0.2 mm
Button Dia. = 10.7 mm
Button Height = 3 mm



2D Bar Code



Reader/Writer Hardware

CMB Cost $15.63 for 32K